YAMAHA

SYMPHONIC ENSEMBLE

SK10

SERVICE MANUAL

006432

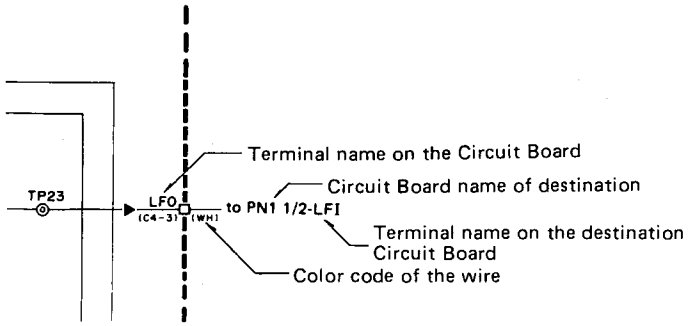
'80. 2 1. 3K Printed in Japan

CONTENTS

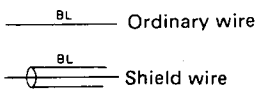
SK10 CODING GUIDE. 1
SK10 DISASSEMBLY PROCEDURE. 2
SK10 SPECIFICATIONS 3
SK10 PANEL LAYOUT. 4
CPA Circuit Diagram. 5
CPA Circuit Board & Wiring . . . . . 6 ~ 7
CPB Circuit Diagram. . . . . 8 ~ 9
CPB Circuit Board & Wiring . . . . . 10 ~ 11
ENS Circuit Diagram. . . . . 12 ~ 13
ENS Circuit Board & Wiring 14
MK Circuit Diagram, **JK** Circuit Diagram, Circuit Board & Wiring. 15
DC Circuit Diagram, **DC** Circuit Board & Wiring. 16
IC DATA TABLE 17
ADJUSTMENT AND INSPECTION STANDARDS . . . . . 18 ~ 21
PARTS LIST. . . . . 22 ~ 30

CODING GUIDE

1 Wiring Notation



Note: Types of wire



2 Symbol Description

Transistor

E: Emitter
C: Collector
B: Base

FET

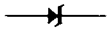
S: Source
G: Gate
D: Drain

Capacitors

Electrolytic capacitor
Polarity
Δ : Tantalum capacitor
NP : Nonpolar capacitor

Mylar, ceramic or polystyrene capacitor

Diode



(Zener Diode)

Switch

B : Break
T : Transfer
M : Make

3 Abbreviations of Wire Color Codes

BLACK (クロ) ..... BL	BROWN (チャ) ..... BR	RED (アカ) ..... RE
ORANGE (タイ) ..... OR	YELLOW (キイ) ..... YE	GREEN (ミト) ..... GR
BLUE (アオ) ..... BE	VIOLET (ムラ) VI	GRAY (ハイ) ..... GY
WHITE (シロ) ..... WH	GRASS GREEN (クサ) ..... GG	SKY BLUE (ソラ) ..... SB
PINK (モモ) ..... PK	TRANSPARENT (トウメイ) ..... TR	

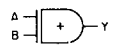
4 Relation of Color Coding and Notes

C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
BR	RE	OR	YE	GR	BE	VI	GY	WH	GG	SB	PK
(チャ)	(アカ)	(タイ)	(キイ)	(ミト)	(アオ)	(ムラ)	(ハイ)	(シロ)	(クサ)	(ソラ)	(モモ)

5 Logic Symbols

	MIL	YAMAHA
NOT		
NOR		
NAND		

Exclusive OR
(排他的論理和)



Truth Table

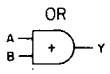
A	B	Y
L	L	L
H	L	H
L	H	H
H	H	L

NOT
(Inverter)

Truth Table

A	Y
L	H
H	L

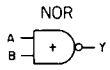
OR



Truth Table

A	B	Y
L	L	L
H	L	H
L	H	H
H	H	H

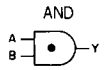
NOR



Truth Table

A	B	Y
L	L	H
H	L	L
L	H	L
H	H	L

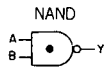
AND



Truth Table

A	B	Y
L	L	L
H	L	L
L	H	L
H	H	H

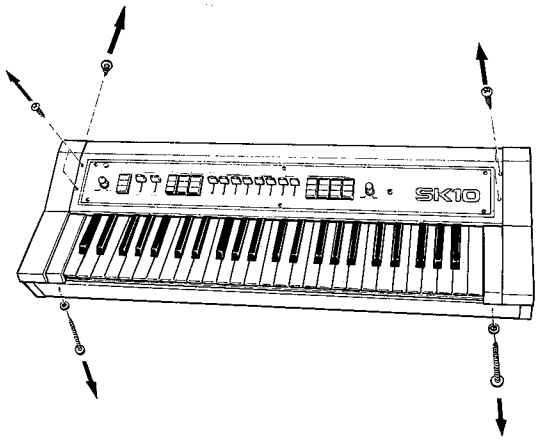
NAND



Truth Table

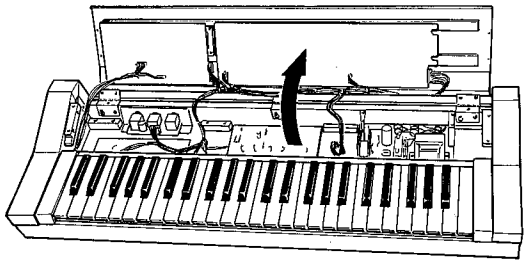
A	B	Y
L	L	H
H	L	H
L	H	H
H	H	L

DISASSEMBLY PROCEDURE

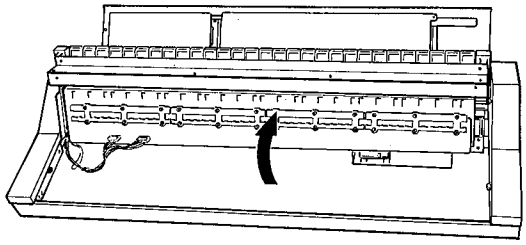


Opening the console panel and keyboard:

- Remove 7 screws from the console panel and bottom cover.



- Lift the panel as shown in the figure at the left until it is fully opened.



- The keyboard can now be lifted around its hinge as shown in the figure at the left.

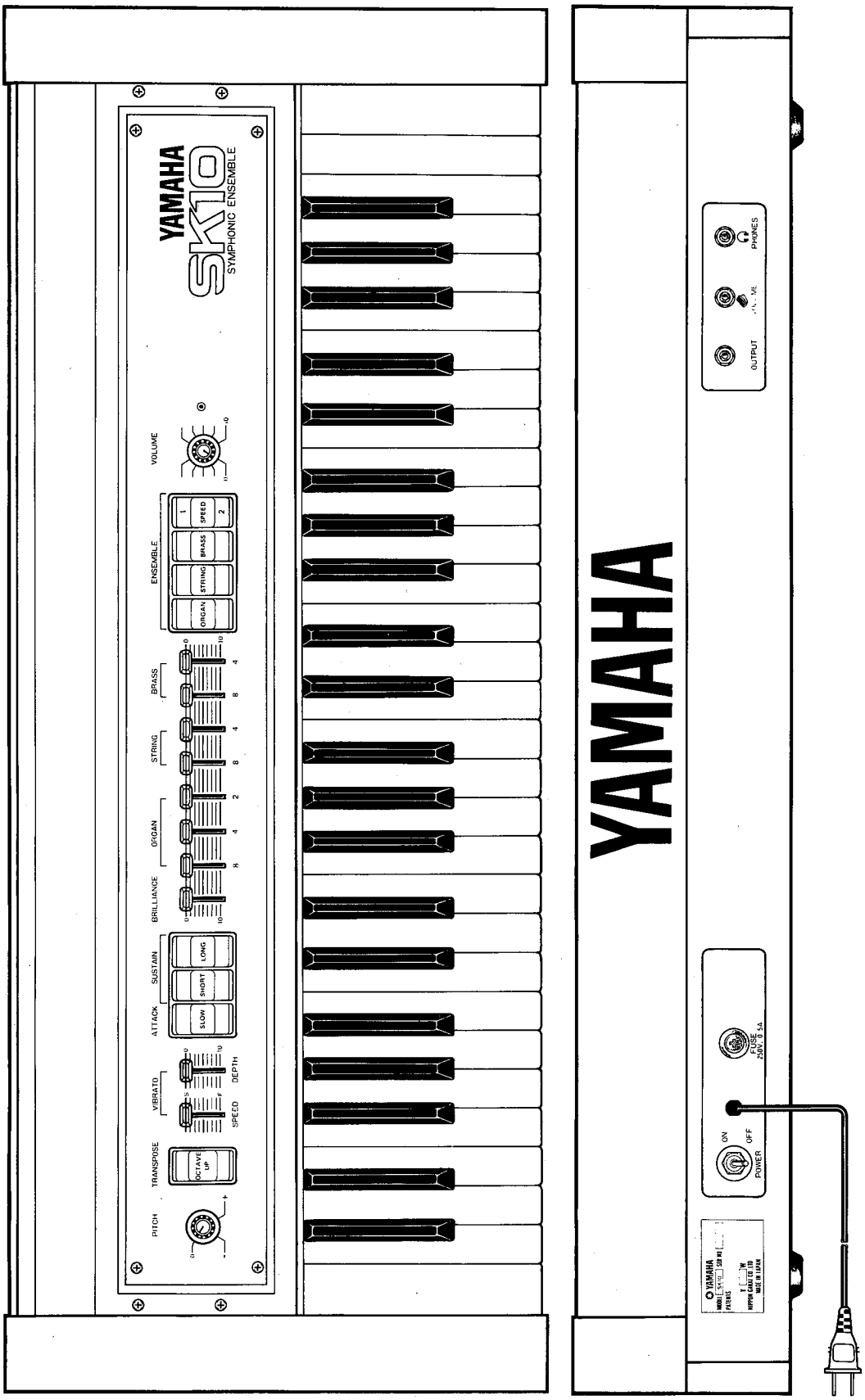
SPECIFICATIONS

Keys	49 keys ($C_1 \sim C_5$)		
Controls	PITCH	438 ~ 452Hz	
	TRANSPOSE	(1 oct. up)	
	VIBRATO	SPEED	5 ~ 7Hz
		DEPTH	
	ATTACK	SLOW	
	SUSTAIN	SHORT	0.5 sec
		LONG	1.0 sec
	BRILLIANCE		
	VOLUME		
Tone Levers	ORGAN 8', 4', 2'		
	STRING 8', 4'		
	BRASS 8', 4'		
Ensemble	ORGAN, STRING, BRASS, SPEED		

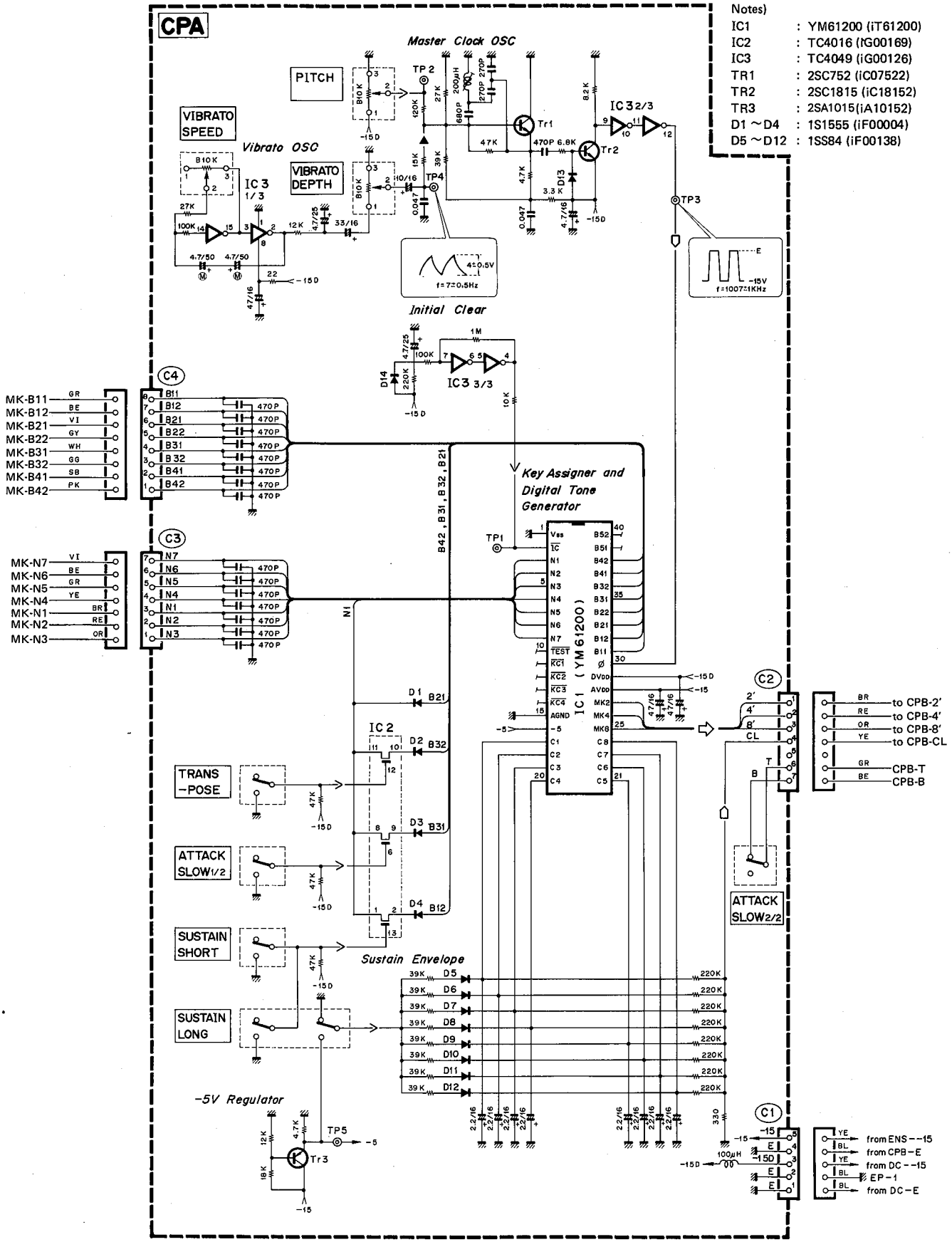
Jacks	OUTPUT	
	VOLUME	
	PHONES (STEREO 8Ω)	
Power Supply	U.S.A. & Canadian model	
	AC 120V, 60Hz	
	N. European models	
	AC110–120V/220–240V, 50/60Hz	
Power Consumption	U.S.A. model	13W
	Canadian model	13VA
	N. European model	13W
Dimensions W x H x D	818 x 132 x 316mm	
	(32-1/4" x 5-1/4" x 12-1/12")	
Weight	12 kg (26 lbs 7 oz)	
Finish	Semi-gloss black panels,	
	Rose wood-grain cabinet	

Specifications subject to change without notice.

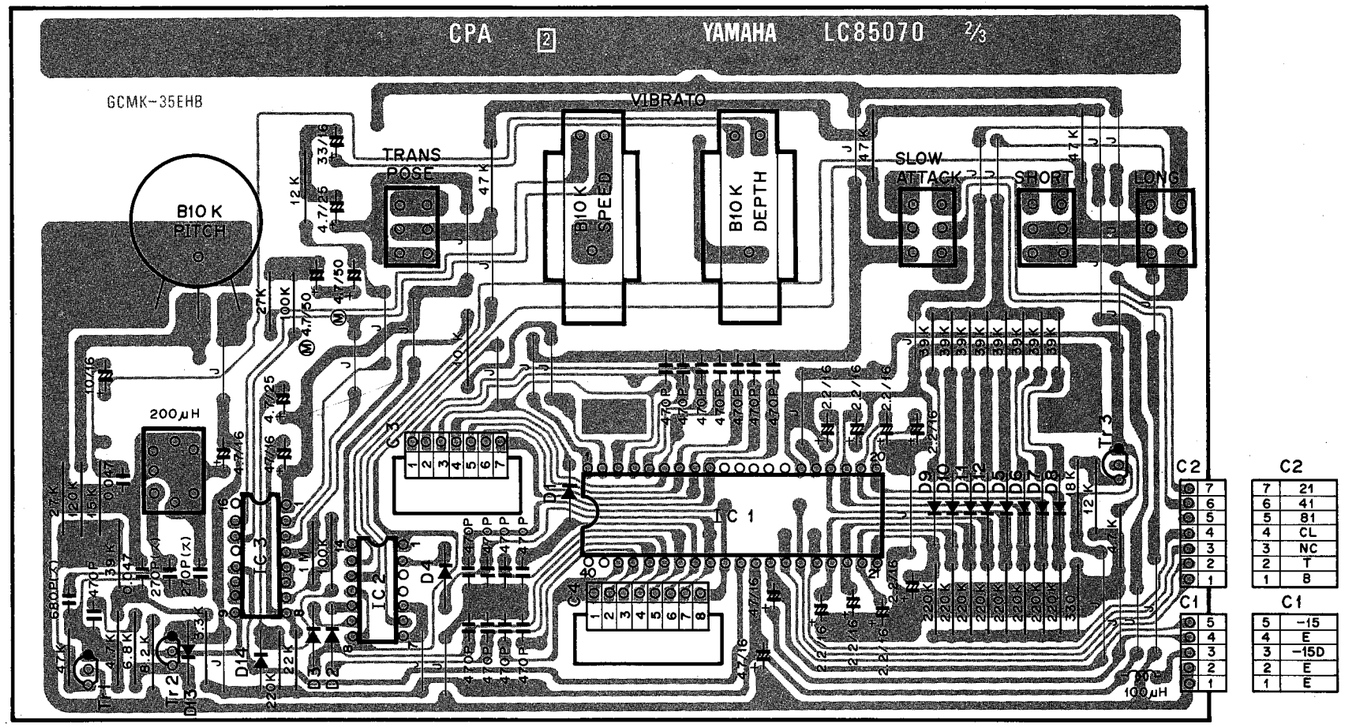
PANEL LAYOUT



CPA Circuit Diagram



CPA Circuit Board & Wiring



C3

1	2	3	4	5	6	7	
N3	N2	N1	N4	N5	N6	N7	

C4

1	2	3	4	5	6	7	8	
B42	B41	B32	B31	B22	B21	B12	B11	

● *View from the printed pattern side of the Circuit Board.*

C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	DC-E (C1-1)
2	E	BL	EP-1
3	–15D	YE	DC- –15 (C1-5)
4	E	BL	CPB-E (C3-2)
5	–15	YE	ENS- –15 (C1-2)

C3

Pin No.	Pin Name	Wire Color	Destination
1	N3	OR	MK-N3 (C1-3)
2	N2	RE	MK-N2 (C1-2)
3	N1	BR	MK-N1 (C1-1)
4	N4	YE	MK-N4 (C1-4)
5	N5	GR	MK-N5 (C1-5)
6	N6	BE	MK-N6 (C1-6)
7	N7	VI	MK-N7 (C1-7)

C2

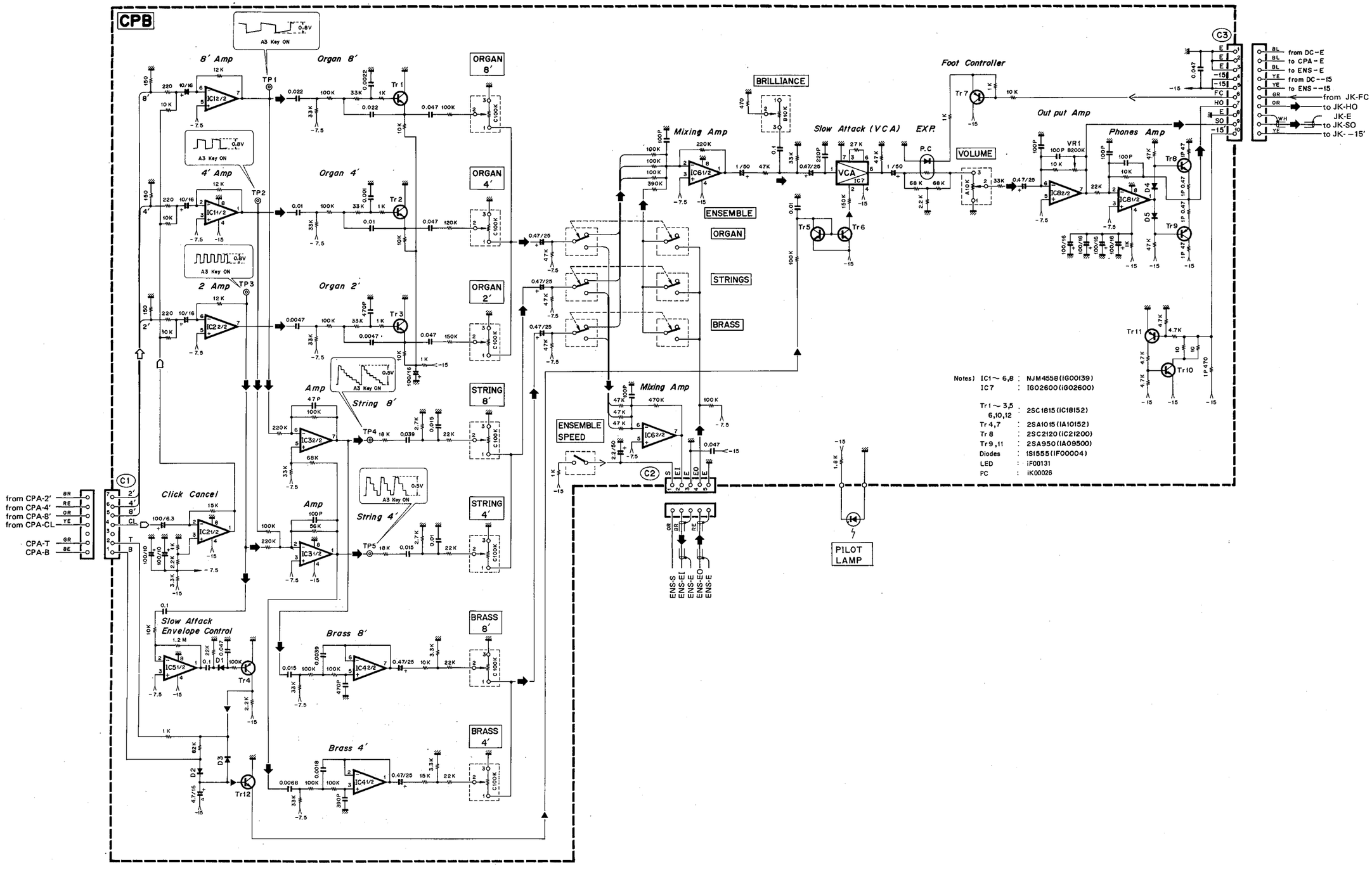
Pin No.	Pin Name	Wire Color	Destination
1	2'	BR	CPB-2' (C1-7)
2	4'	RE	CPB-4' (C1-6)
3	8'	OR	CPB-8' (C1-5)
4	CL	YE	CPB-CL (C1-4)
5	NC	–	–
6	T	GR	CPB-T (C1-2)
7	B	BE	CPB-B (C1-1)

C4

Pin No.	Pin Name	Wire Color	Destination
1	B42	PK	MK-B42 (C2-8)
2	B41	SB	MK-B41 (C2-7)
3	B32	GG	MK-B32 (C2-6)
4	B31	WH	MK-B31 (C2-5)
5	B22	GY	MK-B22 (C2-4)
6	B21	VI	MK-B21 (C2-3)
7	B12	BE	MK-B12 (C2-2)
8	B11	GR	MK-B11 (C2-1)

Note)
1. Circuit Board : LC85072 2/3
2. IC
   IC1 : YM61200 (iT61200)
   IC2 : TC4016 (iG00169)
   IC3 : TC4049 (iG00126)
3. Transistor
   TR1 : 2SC752 (iC07522)
   TR2 : 2SC1815 (iC18152)
   TR3 : 2SA1015 (iA10152)
4. Diode
   D1 ~ D4 : 1S1555 (iF00004)
   D5 ~ D12: 1SS84 (iF00138)
5. Capacitor
   Ⓜ mark ±20%, ELECTROLYTIC CAP.

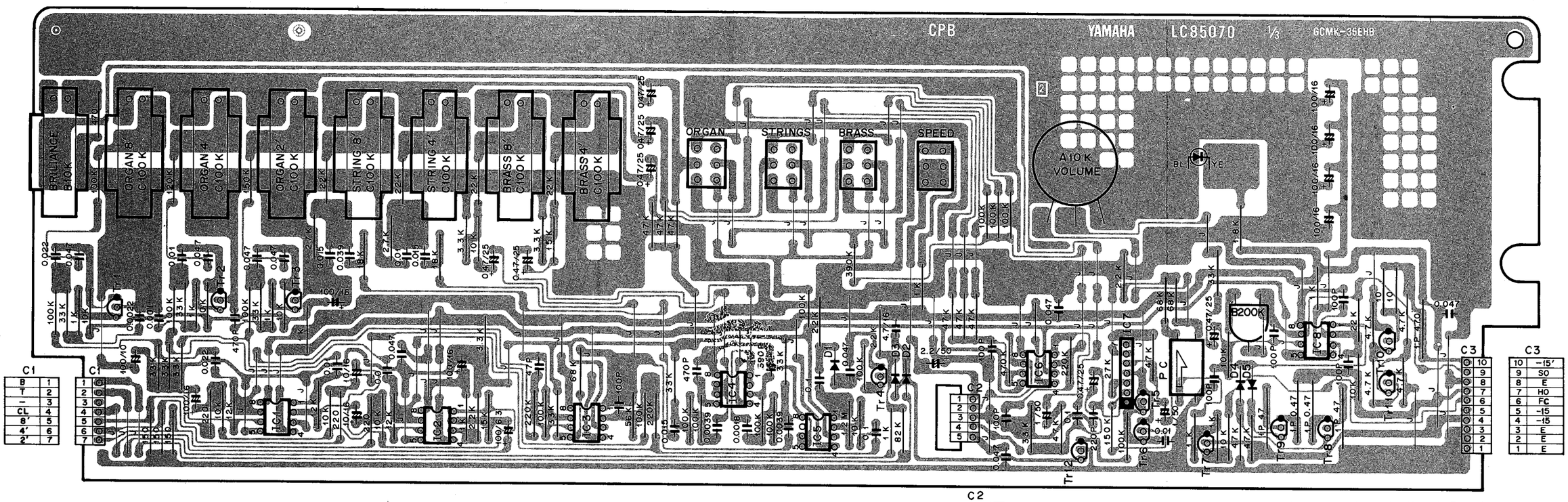
CPB Circuit Diagram



Notes) IC1～6,8 : NJM4558(IG00139)
IC7 : IG02600(iG02600)

Tr1～3,5 6,10,12 : 2SC1815(IC1815)
Tr4,7 : 2SA1015(IA10152)
Tr8 : 2SC2120(IC21200)
Tr9,11 : 2SA950(IA09500)
Diodes : 1SI555(IF00004)
LED : iF00131
PC : iK00026

CPB Circuit Board & Wiring



C2

1	S
2	EI
3	E
4	EO
5	E

- *View from the printed pattern side of the Circuit Board.*

C1

Pin No.	Pin Name	Wire Color	Destination
1	B	BE	CPA-B (C2-7)
2	T	GR	CPA-T (C2-6)
3	NC	–	–
4	CL	YE	CPA-CL (C2-4)
5	8'	OR	CPA-8' (C2-3)
6	4'	RE	CPA-4' (C2-2)
7	2'	BR	CPa-2' (C2-1)

C2

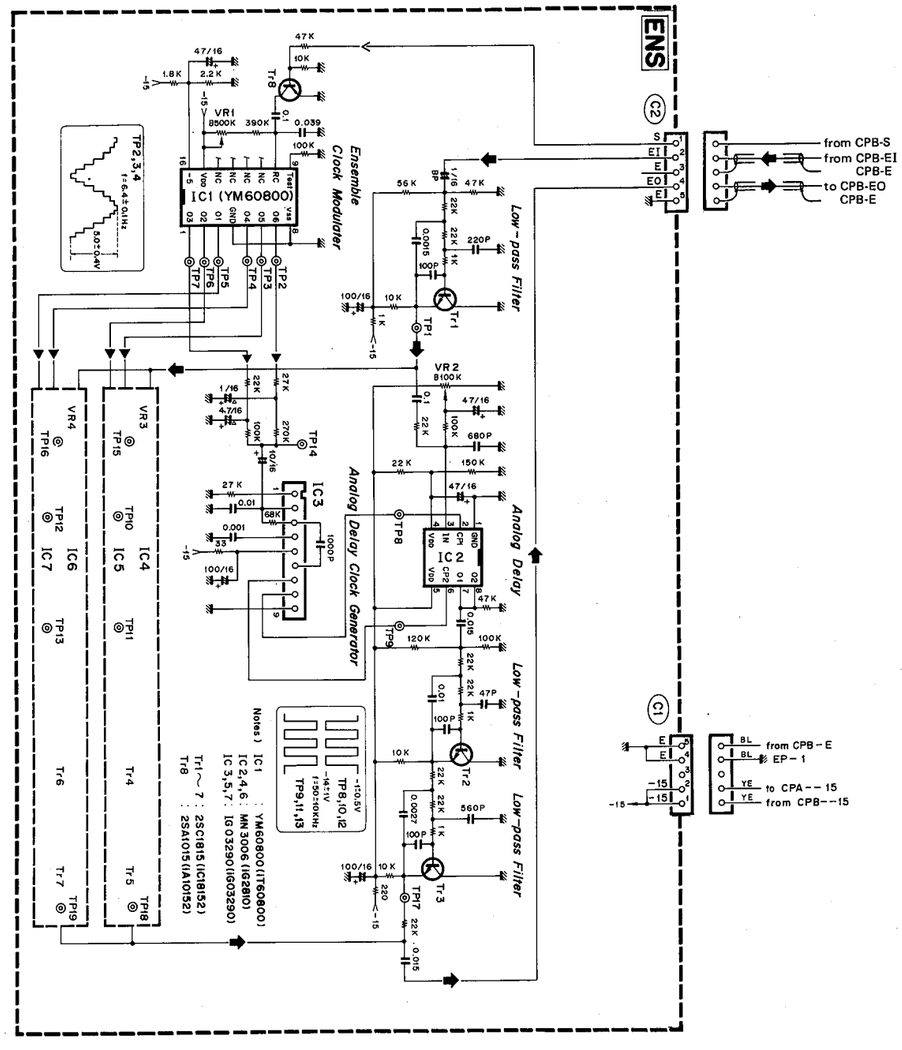
Pin No.	Pin Name	Wire Color	Destination
1	S	OR	ENS-S (C2-1)
2	EI	SBR	ENS-EI (C2-2)
3	E	SBRS	ENS-E (C2-3)
4	EO	SRE	ENS-EO (C2-4)
5	E	SRES	ENS-E (C2-5)

C3

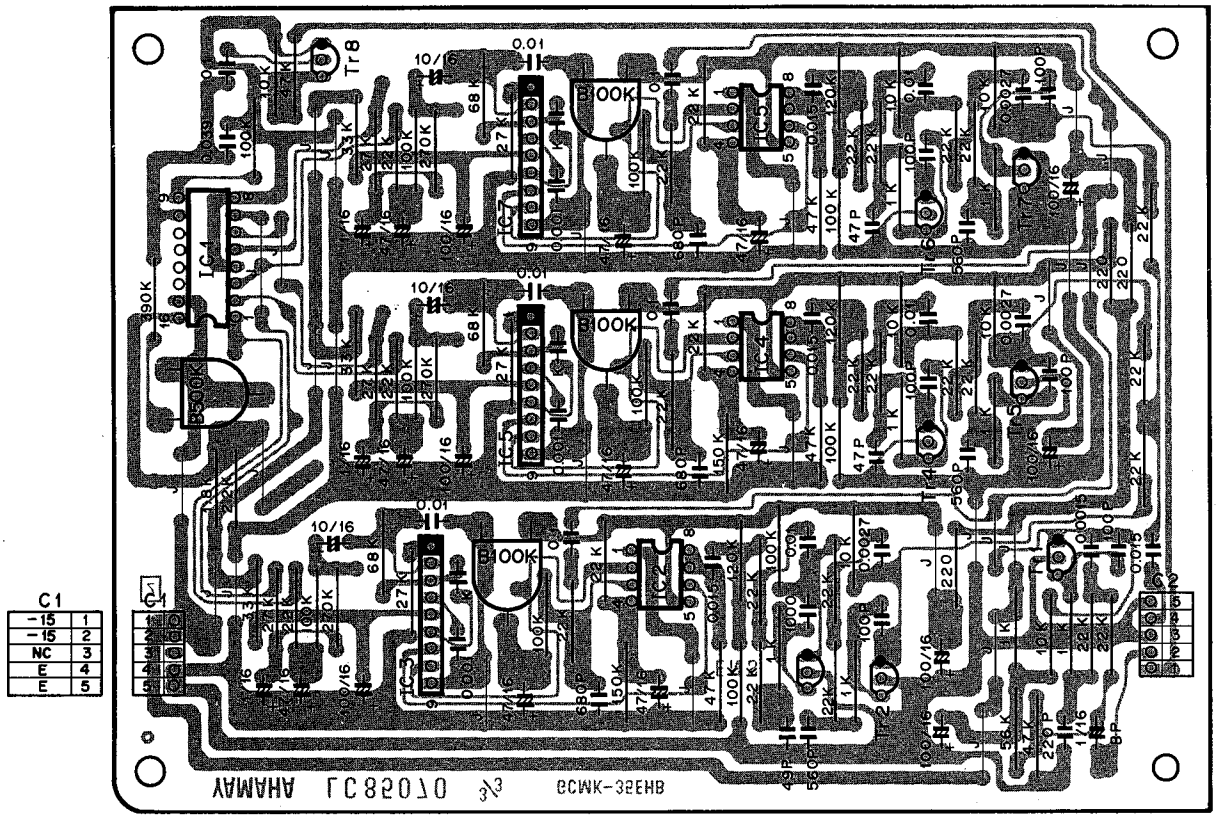
Pin No.	Pin Name	Wire Color	Destination
1	E	BL	DC-E (C1-2)
2	E	BL	CPA-E (C1-4)
3	E	BL	ENS-E (C1-5)
4	–15	YE	DC- –15 (C1-4)
5	–15	YE	ENS- –15 (C1-1)
6	FC	GR	JK-FC (C1-4)
7	HO	OR	JK-HO (C1-1)
8	E	SWHS	JK-E (C1-7)
9	SO	SWH	JK-SO (C1-6)
10	–15'	YE	JK- –15' (C1-3)

Note)
1. Circuit Board : LC85072 1/3
2. IC
   IC1 ~6, 8 : NJM4558 (iG00139)
   IC7 : iG02600 (iG02600)
3. Transistor
   TR1 ~3, 5, 6, 10, 12 : 2SC1815 (iC18152)
   TR4, 7 : 2SA1015 (iA10152)
   TR8 : 2SC2120 (iC21200)
   TR9, 11 : 2SA950 (iA09500)
4. Diodes : 1S1555 (iF00131)
5. LED : iF00131
6. PC : iK00026

ENS Circuit Diagram



ENS Circuit Board & Wiring



C1

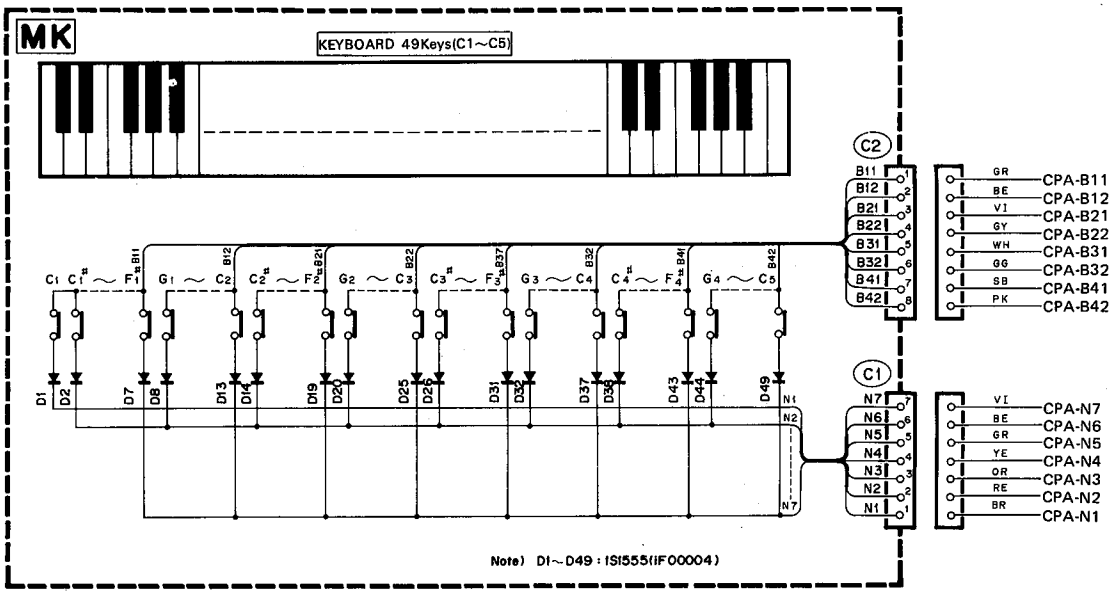
Pin No.	Pin Name	Wire Color	Destination
1	–15	YE	CPB- –15 (C3-5)
2	–15	YE	CPA- –15 (C1-5)
3	NC	–	–
4	E	BL	EP-1
5	E	BL	CPB-E (C3-3)

C2

Pin No.	Pin Name	Wire Color	Destination
1	S	OR	CPB-S (C2-1)
2	EI	SBR	CPB-EI (C2-2)
3	E	SBRS	CPB-E (C2-3)
4	EO	SRE	CPB-EO (C2-4)
5	E	SRES	CPB-E (C2-5)

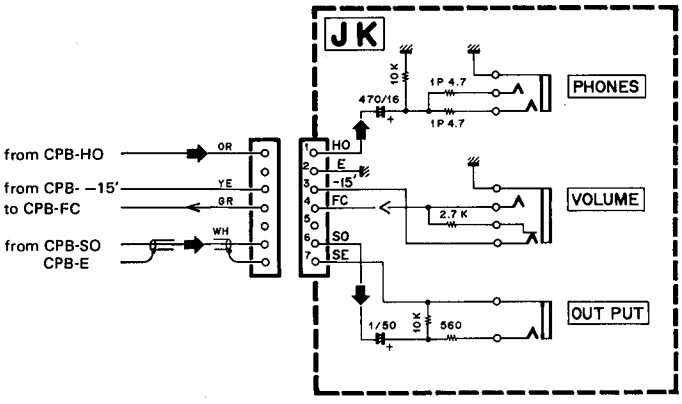
Note)
1. Circuit Board : LC85072 3/3
2. IC
   IC1 : YM60800 (iT60800)
   IC2, 4, 6 : MN3006 (iG02810)
   IC3, 5, 7 : iG03290 (iG03290)
3. Transistor
   Tr1 ~7 : 2SC1815 (iC18152)
   Tr8 : 2SA1015 (iA10152)

MK Circuit Diagram



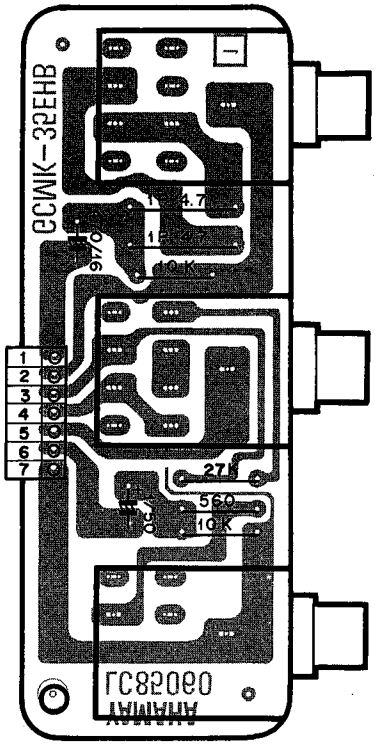
KEC-90325X-97⚠

JK Circuit Diagram, Circuit Board & Wiring



KEC-90332-97

HO	1
E	2
–15'	3
FC	4
NC	5
SO	6
E	7



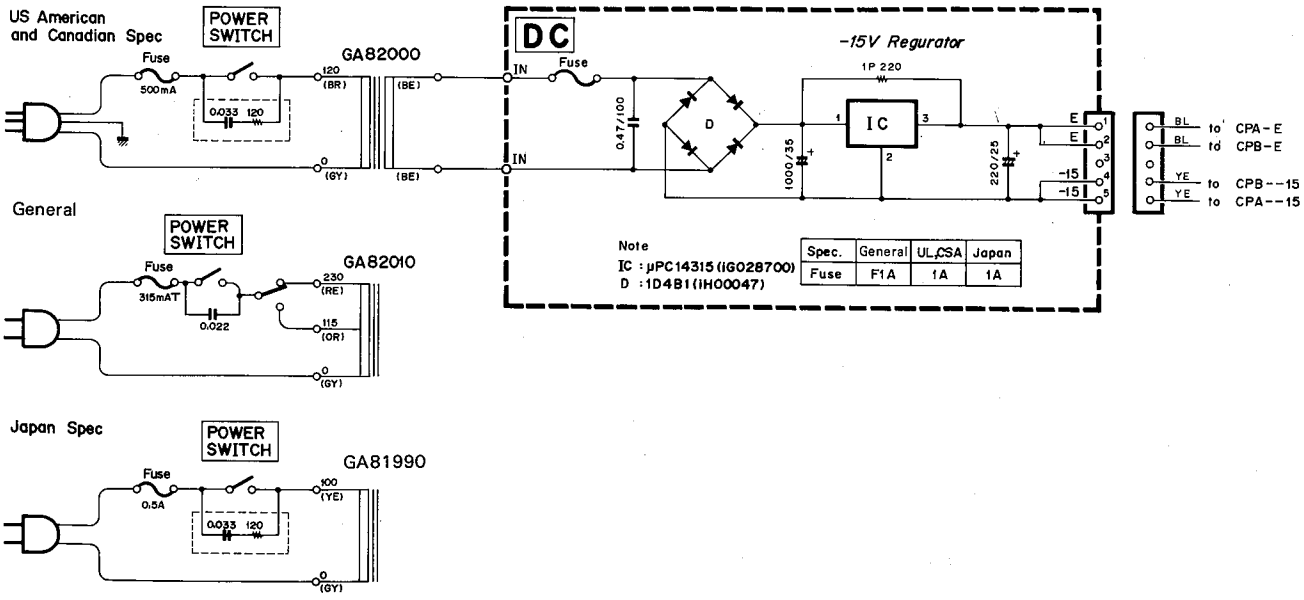
C1

Pin No.	Pin Name	Wire Color	Destination
1	HO	OR	CPB-HO (C3-7)
2	E	–	–
3	–15'	YE	CPB- –15' (C3-10)
4	FC	GR	CPB-FC (C3-6)
5	NC	–	–
6	SO	SWH	CPB-SO (C3-9)
7	E	SWHS	CPB-E (C3-8)

Note)
Circuit Board : LC85061

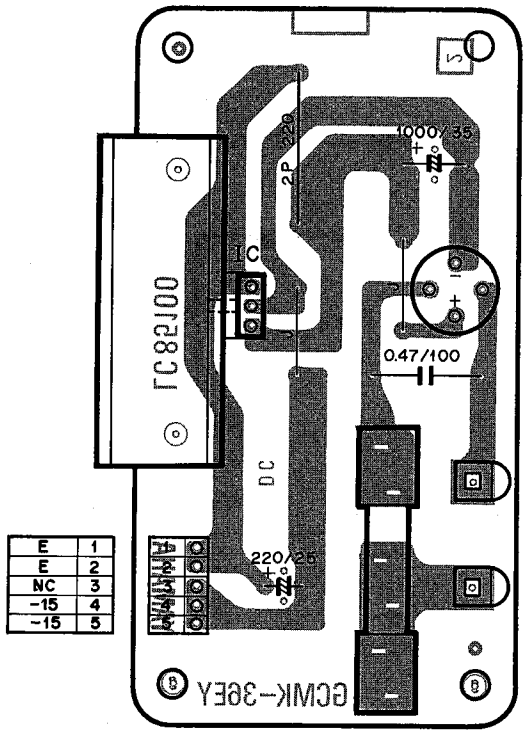
KEP-NA80572-97⚠

DC Circuit Diagram



KEC-90330-97 ⚠

DC Circuit Board & Wiring



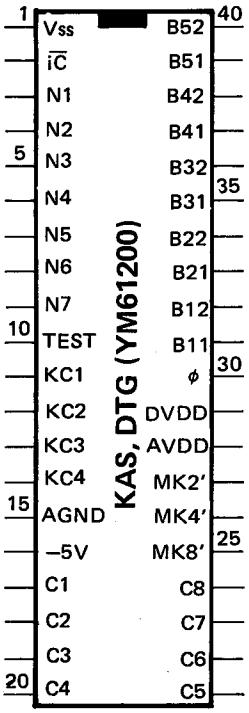
C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	CPA-E (C1-1)
2	E	BL	CPB-E (C3-1)
3	NC	–	–
4	–15	YE	CPB- –15 (C3-4)
5	–15	YE	CPA- –15D (C1-3)

Note)
1. Circuit Board : LC85102
2. IC : μPC14315 (iG028700)
3. Diode : iD4B1 (iH00047)

IC Data Table YM61200

KAS, DTG(YM61200)



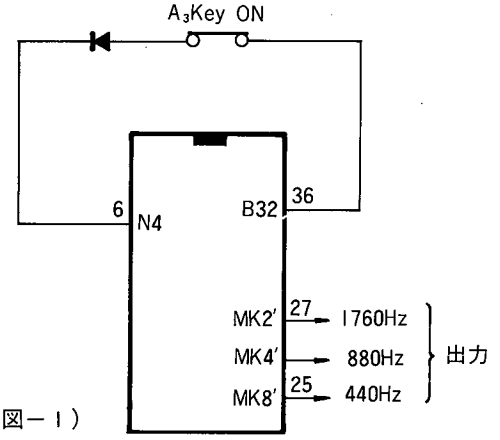
Pin No.	Pin Name	Function
1	Vss	IC power supply (0V)
2	iC	Initial clear input
3	N1	Note data terminal
4	N2	〃 C, G
5	N3	〃
6	N4	〃
7	N5	〃
8	N6	〃
9	N7	〃 (Except C1)
10	$\overline{TEST}$	Unused
11	$\overline{KC1}$	〃
12	$\overline{KC2}$	〃
13	$\overline{KC3}$	〃
14	$\overline{KC4}$	〃
15	AGND	GND (0V)
16	−5V	IC power supply (−5V)
17	C1	Envelope capacitor terminal
18	C2	〃
19	C3	〃
20	C4	〃

No.	Name	Function
40	B52	Block data terminal
39	B51	〃
38	B42	〃
37	B41	〃
36	B32	〃
35	B31	〃
34	B22	〃
33	B21	〃
32	B12	〃
31	B11	〃
30		Master clock input
29	DVDD	IC power supply (−15V) digital
28	AVDD	〃 〃 analog
27	MK2'	2 feet note output
26	MK4'	4 feet 〃
25	MK8'	8 feet 〃
24	C8	Envelope capacitor terminal
23	C7	〃
22	C6	〃
21	C5	〃

IC OPERATION

1. Terminal iC (pin 2), being an initial clear input, accepts −15V two seconds after the instrument is powered.
2. Terminal (pin 30) accepts 1MHz master clock.
3. Terminals N1 ～N7 (pins 3 ～9: note data terminals) and terminals B11 ～B52 (pins 31 ～40: block data terminals) are connected to each other via diode when the corresponding key is pressed. As a result, the pressed key is identified and the corresponding note is output from terminals MK8' ～MK2' (pins 25 ～27) (Figure 1).

The output notes are determined by the matrix table shown at the right.



(図－1)

Block data terminal	Note data terminal N1	N2	N3	N4	N5	N6	N7
B11	C_1	$C_1^\#$	D_1	$D_1^\#$	E_1	F_1	$F_1^\#$
B12		G_1	$G_1^\#$	A_1	$A_1^\#$	B_1	C_2
B21		$C_2^\#$	D_2	$D_2^\#$	E_2	F_2	$F_2^\#$
B22		G_2	$G_2^\#$	A_2	$A_2^\#$	B_2	C_3
B31		$C_3^\#$	D_3	$D_3^\#$	E_3	F_3	$F_3^\#$
B32		G_3	$G_3^\#$	A_3	$A_3^\#$	B_3	C_4
B41		$C_4^\#$	D_4	$D_4^\#$	E_4	F_4	$F_4^\#$
B42		G_4	$G_4^\#$	A_4	$A_4^\#$	B_4	C_5

Adjustment and Inspection Standards

○ **Control Switch and Adjustment Settings**

PITCH	Position 0
BRILLIANCE	Position 10
VOLUME	Position 10
TONE LEVER	Position 0
Effect tablets and levers	Position 0 or OFF

○ **Measuring Instruments Required**

Oscilloscope
Level meter
Frequency counter
Digital voltmeter
AF oscillator

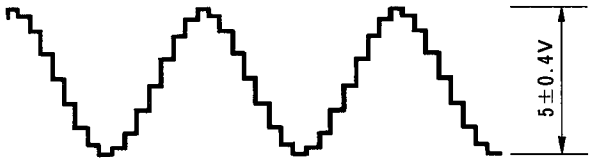
*** Where no test point is specified, check at the output terminal.**

1. ADJUSTMENT

○ **PITCH adjustment (Circuit Board CPA)**
Set the ORGAN-8′ lever to position 10 and press key A3. At this time, adjust the OSC coil core (200 μH) on PC board CPA until an output frequency of 400 ± 1Hz is obtained.

○ **Output level (Circuit Board CPB)**
Set ORGAN-8′, 4′ and 2′ levers to position 10 and press 8 white keys from C2 to C3. Adjust VR1 (B200 kΩ) on PC board CPB until output level of −10 ± 1dBm (245 ± 30mV) is obtained at the output.

○ **ENSEMBLE modulating oscillator frequency (Circuit Board ENS)**
Set the ENSEMBLE SPEED tablet to position 2, and adjust VR1 (B500 kΩ) until a signal of 6.4 ± 0.1Hz is obtained at TP2, TP3 and TP4 on PC board ENS.



f = 6.4 ± 0.1Hz (SPEED2)
f = 1.6 ± 0.3Hz (SPEED1)
The signals at TP2, 3 and 4 have a phase lag of 120 deg. each.

Check that a signal with the amplitude of 1/10 that at TP2, 3 and 4 is obtained at TP5, 6 and 7.
Ensure that the frequency at TP2, 3 and 4 is 1.6 ± 0.3Hz when the SPEED tablet is set to position 1.

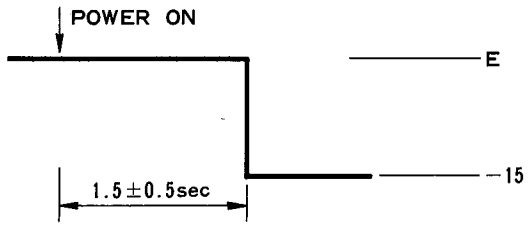
○ **BBD circuit input bias adjustment (Circuit Board ENS)**
Ground TP14, 15 and 16.
Apply a sine-wave signal of 1kHz, 6 Vp-p to terminal EI. Adjust VRs 2, 3 and 4 until the corresponding sine waves are obtained at TPs 17, 18 and 19.

2. CIRCUIT OPERATION CHECK

PC board CPA

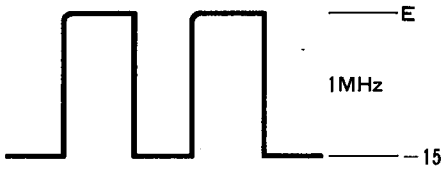
○ **Initial clear circuit**

Check that the following waveform is obtained at TP1 (pin 2 of YM612) when the instrument is powered.



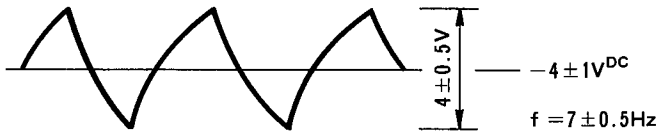
○ **Master clock circuit**

Check that the following waveform is obtained at PT3 (pin 12 of IC3).



○ **Vibrato oscillator circuit**

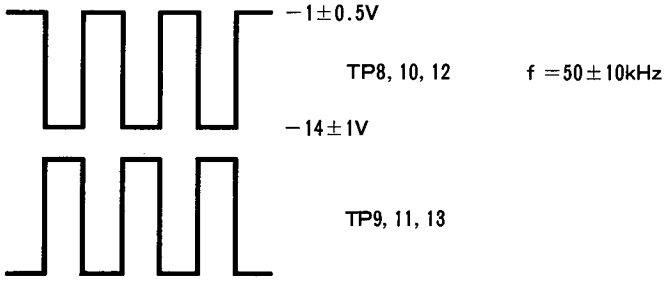
Set the VIBRATO DEPTH control to position 10 and VIBRATO SPEED control to F. At this time, check that the following waveform is obtained at TP4. Then set the VIBRATO SPEED control to S, and check that the frequency at TP4 is 5 ±0.5Hz.



PC board ENS

○ **BBD clock circuit**

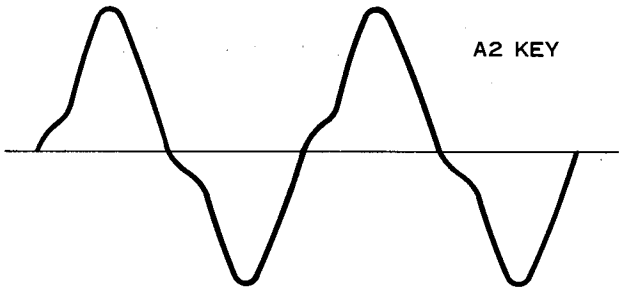
Connect TP14 to E, and check that the following waveforms are obtained at TP8 and TP9. Then connect TP15 (16) to E, and check that the similar waveforms are obtained at TP10 and 11 (12 and 13).



3. TONE WAVEFORM AND LEVEL

*** Set both the BRILLIANCE and VOLUME controls to position 10.**

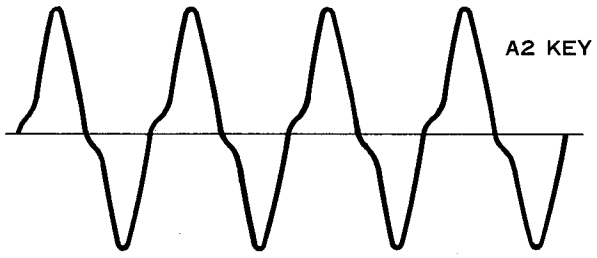
○ **ORGAN8'**



KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−26	−22	−19	−19	−29
m V	39	61	87	87	27

*** Level tolerance: 3dB**

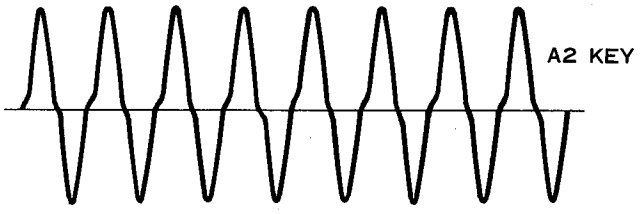
○ **ORGAN4'**



KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−28	−25	−20	−19	−29
m V	30	44	78	87	27

*** Level tolerance: 3dB**

○ **ORGAN2'**



KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−32	−28	−23	−20	−29
m V	19	30	55	78	27

*** Level tolerance: 3dB**

A2KEY

KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−39	−36	−32	−28	−26
m V	8.7	12	19	30	39

*** Level tolerance: 3dB**

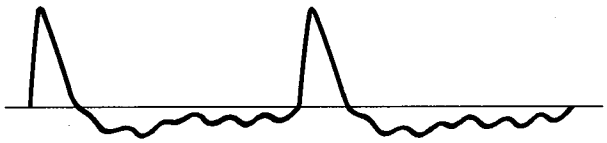
○ **STRING4'**

A2KEY

KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−39	−35	−31	−27	−25
m V	8.7	14	22	35	44

*** Level tolerance: 3dB**

○ **BRASS8'**

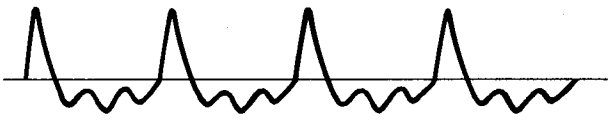


A2KEY

KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−36	−32	−29	−24	−21
m V	12	19	27	49	69

*** Level tolerance: 3dB**

○ **BRASS4'**



A2KEY

KEY	C_1	C_2	C_3	C_4	C_5
LEVEL dBm	−39	−35	−31	−27	−25
m V	8.7	14	22	35	44

*** Level tolerance: 3dB**

YAMAHA

SYMPHONIC ENSEMBLE

SK10

PARTS LIST

CONTENTS(目次)

A. Electronic Components(電気部品)..... 23
B. Keyboard(鍵盤)..... 25
C. Control Panel Bottom Case(コントロールパネル，外装)..... 27

006432

'80. 2 1. 3K ㊎ Printed in Japan

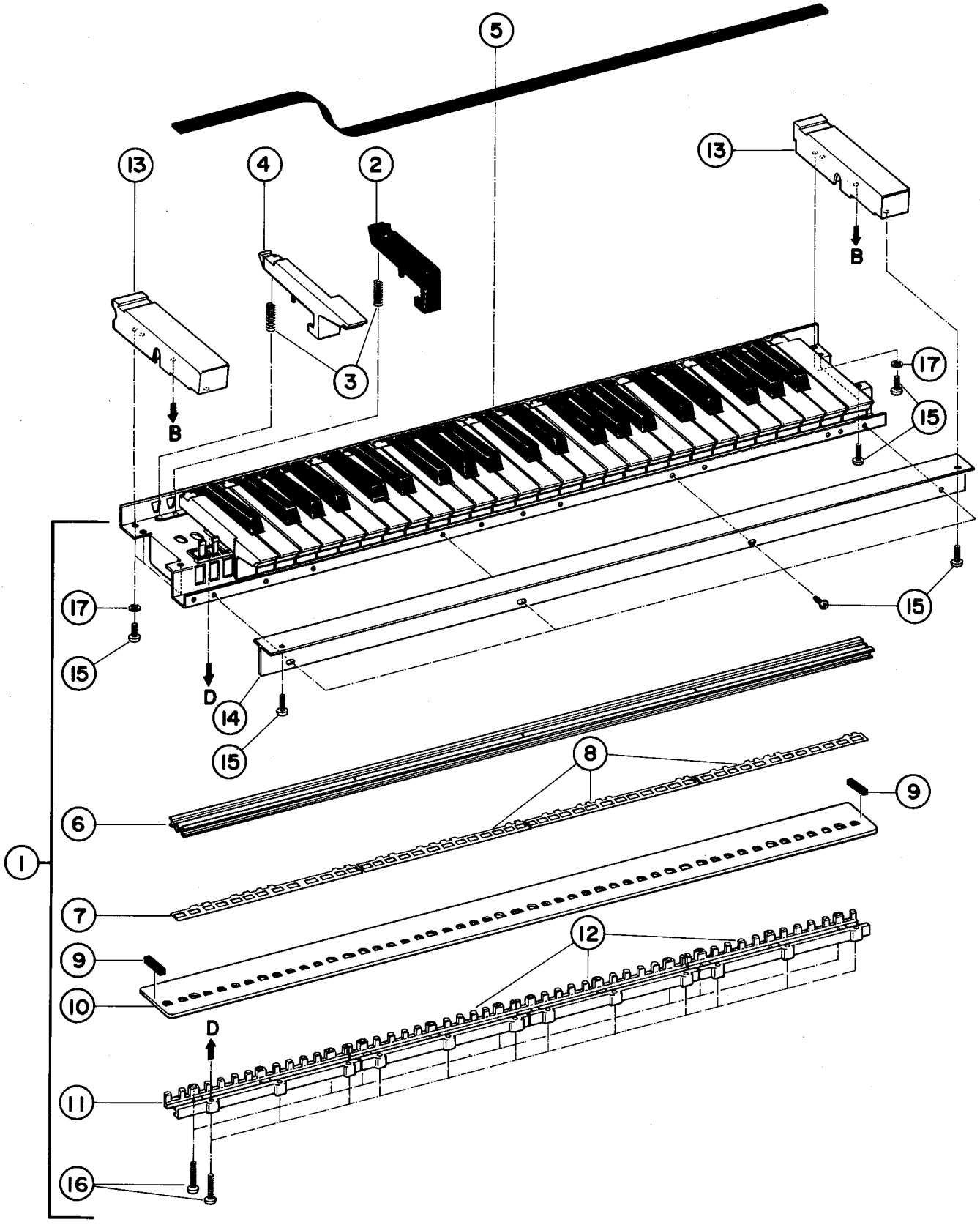
A.Electric Components（電気部品）

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
			CIRCUIT BOARD						
※		30 12 90 NX 81 44 10	CPA Assembly		C P A Ass'y				
※		30 12 90 NB 81 44 20	CPB Assembly		C P B 〃				
※		30 12 90 NA 80 56 80	Circuit Board	ENS	E N S シート				
		30 13 00 NA 10 22 00	– do. –	MK	M K 〃				
※		30 12 00 NA 80 56 90	– do. –	DC	D C 〃	Japan			
		30 12 00 NA 80 57 00	– do. –	DC	D C 〃	U.S.American Canadian			
		30 12 00 NA 80 57 10	– do. –	DC	D C 〃	General			
			I C						
		40 10 00 iG 00 12 60	I C	TC4049BP	I C	INVERTER			
		40 10 00 iG 00 13 90	– do. –	NJM4558DV	〃	OP Amp			
		40 10 00 iG 00 16 90	– do. –	TC4016BP	〃	Analog SW			
		40 10 00 iG 02 60 00	– do. –	iG02600	〃	VCA	CP-10		
		40 10 00 iG 02 81 00	– do. –	MN3006	〃	BBD (128 stage)			
		40 10 00 iG 02 87 00	– do. –	μPC14315H	〃	+15V Regulator			
※		40 10 00 iG 03 29 00	– do. –	iG03290	〃	BBD Driver	CP-10		
		30 10 00 iT 60 80 00	– do. –	YM608	〃	SEC			
		30 10 00 iT 61 20 00	– do. –	YM612	〃	KAS & DTG			
			TRANSISTOR						
		40 10 00 iA 09 50 00	Transistor	2SA950 (Y)	トランジスター		CS-40M		
		40 10 00 iA 10 15 20	– do. –	2SA1015 (Y)	〃		E-1010		
		40 10 00 iC 07 52 20	– do. –	2SC752 (Y)	〃				
		40 10 00 iC 18 15 20	– do. –	2SC1815 (Y)	〃		E-1010		
		40 10 00 iC 21 20 00	– do. –	2SC2120 (Y)	〃		CS-40M		
			DIODE						
		40 10 00 iF 00 00 40	Diode	1S1555	ダイオード				
		40 10 00 iF 00 13 80	– do. –	1SS84	〃				
		40 10 00 iH 00 04 70	– do. –	1D4B1	〃				
		40 10 00 iK 00 02 60	Photo Coupler	P873-G35-201B	フォトカプラー				
		40 10 00 iF 00 13 10	LED	TLR-102KB	L E D		CS-5		
			COIL						
		40 10 00 GE 30 01 20	Choke Coil	100μH	高周波チョークコイル				
		40 10 00 GE 90 03 40	O・S・C Coil	200μH	O S C コイル				
			RESISTOR						
		40 10 00 HT 19 00 80	Semi Variable Resistor	B-100KΩ	半固定ボリューム	V10K8-4-2			
		40 10 00 HT 19 00 90	– do. –	B-200KΩ	〃	– do. –			
		40 10 00 HT 19 01 00	– do. –	B-500KΩ	〃	– do. –			
		40 10 00 HV 55 42 20	Flame Proof Carbon Resistor	22Ω	不燃性カーボン抵抗				
		40 10 00 HV 55 43 30	– do. –	33Ω	〃				
		40 10 00 HV 55 52 20	– do. –	220Ω	〃				
		40 10 00 HL 31 24 70	Metal Oxide Film Resistor 1P	0.47Ω	酸化金属被膜抵抗				
		40 10 00 HL 31 34 70	– do. –	1P 4.7Ω	〃				
		40 10 00 HL 41 44 70	– do. –	1P 47Ω	〃				
		40 10 00 HL 31 54 70	– do. –	1P 470Ω	〃				
		40 10 00 HL 32 52 20	– do. –	2P 220Ω	〃				
			CAPACITOR						
		40 10 00 FA 15 31 00	Mylar Capacitor	50V(J) 0.01μF	マイラーコンデンサー				
		40 10 00 FA 15 31 50	– do. –	–do.– 0.0015μF	〃				
		40 10 00 FA 15 31 80	– do. –	–do.– 0.0018μF	〃				
		40 10 00 FA 15 32 20	– do. –	–do.– 0.0022μF	〃				
		40 10 00 FA 15 32 70	– do. –	–do.– 0.0027μF	〃				
		40 10 00 FA 15 33 90	– do. –	–do.– 0.0039μF	〃				
		40 10 00 FA 15 34 70	– do. –	–do.– 0.0047μF	〃				

※ New Parts (新規部品)

Ref. No.	Part No.	Description			部品名	Remarks	Common Model		
	40 10 00 FA 15 36 80	Mylar Capacitor	50V (J)	0.0068μF	マイラーコンデンサー				
	40 10 00 FA 15 41 00	– do. –	–do.–	0.01μF	〃				
	40 10 00 FA 15 41 50	– do. –	–do.–	0.015μF	〃				
	40 10 00 FA 15 42 20	– do. –	–do.–	0.022μF	〃				
	40 10 00 FA 15 43 90	– do. –	–do.–	0.039μF	〃				
	40 10 00 FA 15 44 70	– do. –	–do.–	0.047μF	〃				
	40 10 00 FA 15 51 00	– do. –	–do.–	0.1μF	〃				
	40 10 00 FC 18 54 70	Metalized Mylar Capacitor	100V(K)	0.47μF	メタライズドマイラーコン				
	40 10 00 FD 15 22 70	Polystyrene Capacitor	50V (J)	270pF	スチロールコンデンサー				
	40 10 00 FD 15 26 80	– do. –	–do.–	680pF	〃				
	40 10 00 FG 21 14 70	Ceramic Capacitor	50V (K)	47pF	セラミックコンデンサー				
	40 10 00 FG 21 21 00	– do. –	–do.–	100pF	〃				
	40 10 00 FG 21 22 20	– do. –	–do.–	220pF	〃				
	40 10 00 FG 21 23 90	– do. –	–do.–	390pF	〃				
	40 10 00 FG 71 24 70	– do. –		470pF	〃				
	40 10 00 FG 71 25 60	– do. –		560pF	〃				
	40 10 00 FG 21 26 80	– do. –		680pF	〃				
	40 10 00 FG 21 31 00	– do. –	–do.–	1,000pF	〃				
	40 10 00 FM 11 61 00	Bipolar Capacitor	50V	1μF	BPコンデンサー				
	40 10 00 FP 33 61 00	Tantalum Capacitor	16V	1μF	タンタルコンデンサー				
	40 10 00 FP 33 62 20	– do. –	–do.–	2.2μF	〃				
	40 10 00 FP 33 64 70	– do. –	–do.–	4.7μF	〃				
		FUSE							
	40 10 00 KB 00 03 30	Fuse	1A	250V	ヒューズ	Japan			
	40 10 00 KB 00 10 20	– do. –	–do.–	–do.–	〃	U.S.American Canadian			
	40 10 00 KB 00 05 50	– do. –	–do.–	–do.–	〃	General			
	40 10 00 KB 00 03 10	– do. –	0.5A	–do.–	〃	Japan			
	40 10 00 KB 00 11 50	– do. –	–do.–	–do.–	〃	U.S.American Canadian			
	40 10 00 KB 00 06 50	– do. –	0.315A	–do.–	〃	General			
		TRANSFORMER							
※	40 10 00 GA 81 99 00	Power Transformer			電源トランス	Japan			
※	40 10 00 GA 82 00 00	– do. –			〃	U.S.American Canadian			
※	40 10 00 GA 82 01 10	– do. –			〃	General			
		SWITCH							
	40 10 00 KA 30 04 30	Power Switch	CTA11		電源スイッチ	Japan	CP-10		
	40 10 00 KA 30 05 40	– do. –	CTA11		〃	U.S.American	CP-10		
	40 10 00 KA 30 05 00	– do. –	CTA01		〃	Canadian	CP-10		
	40 10 00 KA 30 04 70	– do. –	3902B		〃	General	CP-10		
		CONNECTOR							
	40 10 00 LB 20 05 70	Fuse Holder Pin			ヒューズホルダーピン				
	40 10 00 LB 20 12 30	Phone Jack	(MONO)		ジャック（モノラル）				
	40 10 00 LB 30 10 80	– do. –	(STEREO)		〃（ステレオ）				
	40 10 00 LB 50 03 70	Connector	5P		コネクターソケット	Bottom Entry			
	40 10 00 LB 60 30 00	– do. –	7P		〃	– do. –			
	40 10 00 LB 60 30 10	– do. –	8P		〃	– do. –			
	40 10 00 LB 60 30 70	– do. –	10P		〃	– do. –			
	40 10 00 LB 50 02 50	– do. –	5P		〃	Top Entry			
	40 10 00 LB 60 24 60	– do. –	7P		〃	– do. –			
	40 10 00 LB 50 02 40	Connector Housing	5P		コネクターハウジング				
	40 10 00 LB 60 24 40	– do. –	7P		〃				
	40 10 00 LB 60 24 80	– do. –	8P		〃				
	40 10 00 LB 60 24 50	– do. –	10P		〃				
	40 10 00 BB 00 44 30	Contact			コンタクト				

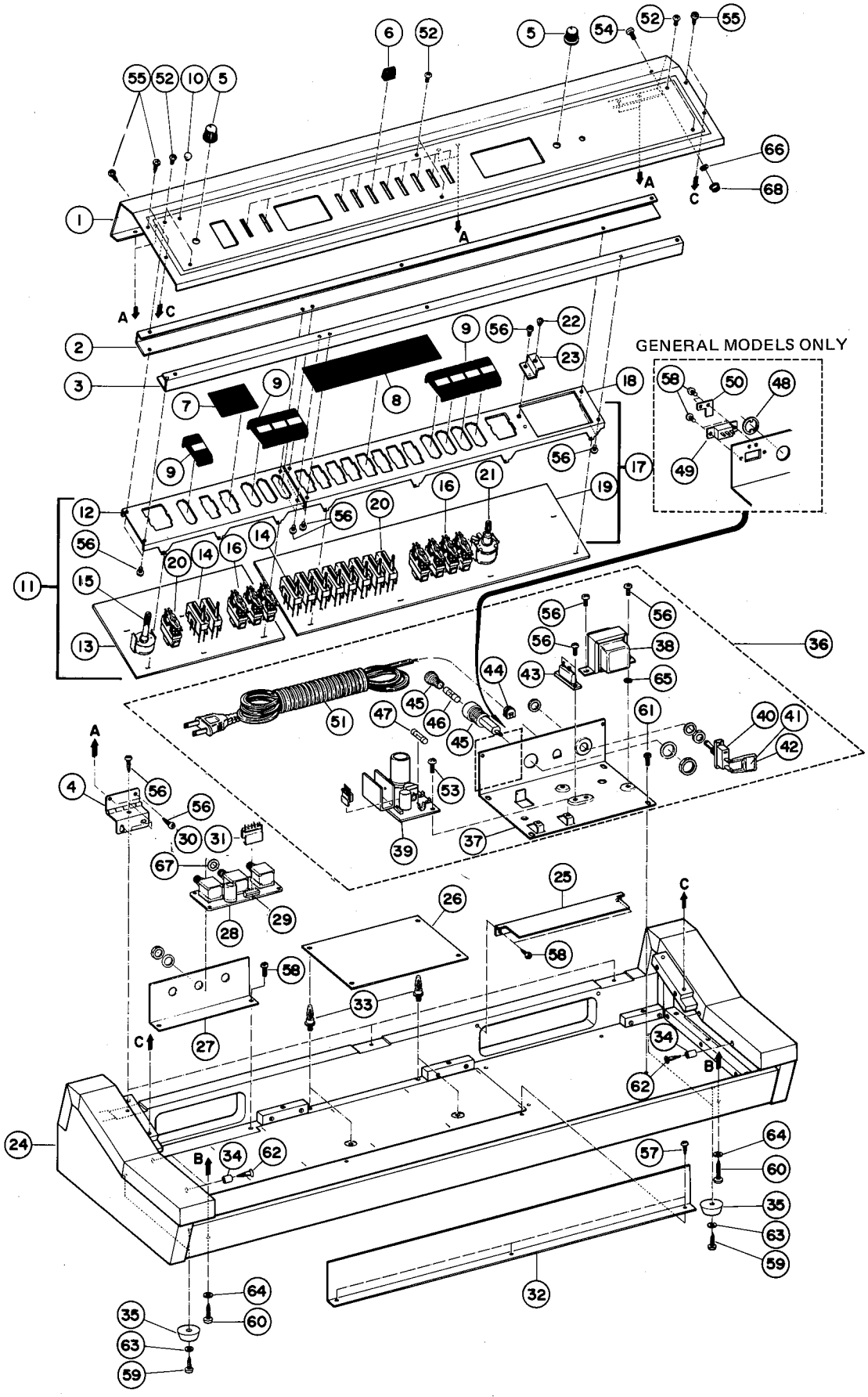
※ New Parts (新規部品)


5
13
4
2
13
B
3
B
17
15
17
15
15
D
14
15
8
9
6
1
7
12
9
10
D
11
16

Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
		KEYBOARD ASSEMBLY						
1	30 10 00 NB 81 47 80	Key Board Assembly	C-49 Keys	鍵盤 Ass'y	C-49 Keys			
2	30 10 00 CB 03 22 70	Black Key		黒鍵				
3	30 10 00 AA 04 37 20	Coil Spring		コイルスプリング				
4	30 10 00 CB 03 22 10	White Key	C, F	白鍵				
	30 10 00 CB 03 22 20	– do. –	D	〃				
	30 10 00 CB 03 22 30	– do. –	B, E	〃				
	30 10 00 CB 03 22 40	– do. –	G	〃				
	30 10 00 CB 03 22 50	– do. –	A	〃				
	30 10 00 CB 03 22 60	– do. –	C'	〃				
※ 5	40 10 00 CC 01 47 40	Felt		フェルト				
6	40 10 00 CB 03 23 20	Rubber Contact		可動導電ゴム	C-49 Keys			
7	30 10 00 CB 03 35 80	Spacer	13 Keys	絶縁スペーサー				
8	30 10 00 CB 03 35 70	– do. –	12 Keys	〃				
9	40 10 00 CB 03 35 40	End Plate		エンドプレート		CS-40M		
10	30 13 00 NA 10 22 00	MK Circuit Board		MK シート	C-49 Keys			
11	30 10 00 CB 03 24 10	Holder, MK Circuit Board	13 Keys	基板ホルダー				
12	30 10 00 CB 03 24 00	Holder, – do. –	12 Keys	〃				
※ 13	30 10 00 CB 81 50 10	End Block		拍子木		CP-10		
※ 14	30 10 00 CB 81 51 20	Keyboard Spacer		口棒レール				
15	40 10 00 Ei 34 01 00	Bind Head Tapping Screw	M4 x 10	バインドタッピングネジ	ZMC2-BI			
16	40 10 00 EZ 33 01 40	Screw	M3 x 14	エバータイトバインドネジ				
17	40 10 00 EV 42 30 40	Toothed Lock Washer	B4S	歯付座金				

※ New Parts (新規部品)

C.Control Panel, Bottom Case（コントロールパネル，外装）



	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
			PANEL ASSEMBLY						
※	1	30 10 00 AA 81 17 80	Control Panel		コントロールパネル				
※	2	30 10 00 AA 81 18 80	Chassis Rail		シャーシレール				
※	3	30 10 00 AA 81 18 90	– do. –		〃				
	4	30 10 00 AA 81 12 40	Hinge		蝶番		CS-40M		
	5	30 56 00 CB 81 21 30	Knob (YELLOW)	for Rotary VR	ツマミ		EM-200		
※	6	30 10 00 CB 81 50 00	Knob (YELLOW)	for Slide VR	〃		CP-10		
※	7	40 10 00 CA 80 21 80	Dust Proof Cover		防塵クロス				
※	8	40 10 00 CA 80 21 90	– do. –		〃				
	9	40 10 00 NK 90 06 20	Tablet Button	OCTAVE UP	ダブレットボタン				
		40 10 00 NK 90 06 30	– do. –	SLOW	〃				
		40 10 00 NK 90 06 40	– do. –	SHORT	〃				
		40 10 00 NK 90 06 50	– do. –	LONG	〃				
※		40 10 00 NK 90 06 60	– do. –	ORGAN	〃				
		40 10 00 NK 90 06 70	– do. –	STRING	〃				
※		40 10 00 NK 90 06 80	– do. –	BRASS	〃				
※		40 10 00 NK 90 06 90	– do. –	SPEED	〃				
	10	30 10 00 CB 81 40 60	Rubber Cap		ゴムキャップ		CS-40M		
	11	30 12 90 NX 81 44 10	CPA Assembly		CPA Ass'y				
※	12	30 10 00 AA 81 18 50	Sub Chassis		サブシャーシ				
※	13	30 12 90 NX 80 56 60	CPA Circuit Board		CPA シート				
	14	40 10 00 HQ 61 00 50	Slide Variable Resistor	B-10KΩ	スライドボリューム				
	15	40 10 00 HR 20 02 80	Variable Resistor	B-10KΩ	ロータリーボリューム				
	16	40 10 00 KA 10 05 80	Tablet Switch	(Black)	ダブレットスイッチ				
	17	30 12 90 NB 81 44 20	CPB Assembly		CPB Ass'y				
※	18	30 10 00 AA 81 18 60	Sub Chassis		サブシャーシ				
※	19	30 12 90 NA 80 56 70	CPB Circuit Board		CPB シート				
※	20	40 10 00 HQ 61 01 70	Slide Variable Resistor	C-100KΩ	スライドボリューム				
	21	40 10 00 HR 20 02 50	Variable Resistor	A-10KΩ	ロータリーボリューム				
	22	40 10 00 iF 00 13 10	LED	TLR-102KB	LED		CS-5		
※	23	30 10 00 AA 81 33 50	LED Holder		LED 金具				
			BOTTOM CASE ASSEMBLY						
※	24	30 12 90 00 00 00 10	Bottom Case		外装集成				
※	25	30 10 00 AA 81 28 40	Shield Plate		シールド板				
※	26	30 12 90 NA 80 56 80	ENS Circuit Board		ENS シート				
※	27	30 10 00 AA 81 28 30	JK Panel		JK パネル				
※	28	40 10 00 LC 85 06 10	Printed Circuit Board	JK	JK 基板		CP-10		
	29	40 10 00 LB 60 24 60	Connector	7P	コネクターソケット	Top Entry			
		40 10 00 LB 50 02 50	– do. –	5P	〃	– do. –			
		40 10 00 LB 50 03 70	– do. –	5P	〃	Bottom Entry			
		40 10 00 LB 60 30 00	– do. –	7P	〃	– do. –			
		40 10 00 LB 60 30 10	– do. –	8P	〃	– do. –			
		40 10 00 LB 60 30 70	– do. –	10P	〃	– do. –			
	30	40 10 00 LB 50 02 40	Connector Housing	5P	コネクターハウジング				
		40 10 00 LB 60 24 40	– do. –	7P	〃				
		40 10 00 LB 60 24 80	– do. –	8P	〃				
		40 10 00 LB 60 24 50	– do. –	10P	〃				
	31	40 10 00 BB 00 44 30	Contact		コンタクト				

※ New Parts (新規部品)

	Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
※	32	30 10 00 AA 81 33 60	Shield Plate	シールド板				
	33	30 56 00 CB 08 70 00	Holder, Circuit Board	シートホルダー		EM-200		
	34	30 10 00 CB 03 30 70	Spacer	回転止め				
	35	30 54 00 CB 80 12 70	Leg	ゴム脚		PM-200B 300, 400		
※	36	30 12 00 NB 81 45 40	Power Supply Unit	電源ユニット	Japan			
※		30 12 00 NB 81 45 50	– do. –	〃	U.S. American			
※		30 12 00 NB 81 45 60	– do. –	〃	Canadian			
※		30 12 00 NB 81 45 70	– do. –	〃	General			
※	37	30 10 00 AA 81 28 00	Chassis, Power Supply Unit	電源シャーシ	Japan	CP-10		
※		30 10 00 AA 81 28 10	– do. –	〃	U.S. American Canadian	– do. –		
※		30 10 00 AA 81 27 90	– do. –	〃	General	– do. –		
※								
※	38	40 10 00 GA 81 99 00	Power Transformer	電源トランス	Japan			
※		40 10 00 GA 82 00 00	– do. –	〃	U.S. American Canadianl			
※		40 10 00 GA 82 01 10	– do. –	〃	General			
※	39	30 12 00 NA 80 56 90	DC Circuit Board	DCシート	Japan			
※		30 12 00 NA 80 57 00	– do. –	〃	U.S. American Canadian			
※		30 12 00 NA 80 57 10	– do. –	〃	General			
	40	40 10 00 KA 30 04 30	Power Switch CTA11	電源スイッチ	Japan			
		40 10 00 KA 30 05 40	– do. – CTA11	〃	U.S. American			
		40 10 00 KA 30 05 00	– do. – CTA01	〃	Canadian			
		40 10 00 KA 30 04 70	– do. – 3902B	〃	General	G-10		
	41	40 10 00 FZ 00 01 10	Spark Suppressor Capacitor 500V 0.33 + 120Ω	スパークキラーコン	Japan, U.S. American			
		40 10 00 FZ 00 09 50	– do. – S1201	〃	Canadian			
		40 10 00 FZ 00 22 50	– do. – 250V 0.022	〃	General			
	42	40 10 00 CB 07 21 90	Cover, Spark Suppressor Capacitor	コンデンサーカバー	Japan, U.S. American General			
		40 10 00 CB 07 98 90	Cover, – do. –	〃	Canadian			
	43	40 10 00 LA 00 29 50	Color Terminal 2P	カラー端子板				
	44	40 10 00 CB 06 86 30	Cord Bush SR-3P-4	コードブッシュ	Japan			
		40 10 00 CB 80 68 50	– do. – SR-6W3-4	〃	U.S. American Canadian			
		40 10 00 CB 07 27 50	– do. – SR-4N-4	〃	General			
	45	40 10 00 LB 20 04 90	Fuse Holder	ヒューズホルダー	Japan, U.S. American Canadian			
		40 10 00 LB 20 05 90	– do. –	〃	General			
	46	40 10 00 KB 00 03 10	Fuse 0.5A 250V	ヒューズ	Japan			
		40 10 00 KB 00 11 50	– do. – 0.5A 250V	〃	U.S. American Canadian			
		40 10 00 KB 00 06 50	– do. – 0.315A 250V	〃	General			
	47	40 10 00 KB 00 03 30	– do. – 1A 250V	〃	Japan			
		40 10 00 KB 00 10 20	– do. – 1A 250V	〃	U.S. American Canadian			
		40 10 00 KB 00 05 50	– do. – 1A 250V	〃	General			
	48	40 10 00 AA 03 15 80	Fuse Holder Washer	ヒューズホルダーワッシャー	General			
	49	40 10 00 KA 40 04 10	Slide Switch	スライドスイッチ	General			
	50	40 10 00 CB 81 42 50	Stopper	ストッパー	General	CS-40M		

※ New Parts (新規部品)

Ref. No.	Part No.	Description		部品名	Remarks	Common Model	ランク	標準小売価
51	40 10 00 MG 00 06 00	A.C Cord		電源コード	Japan			
	40 10 00 MG 00 02 70	– do. –		〃	U.S. American Canadian			
	40 10 00 MG 00 08 60	– do. –		〃	General			
52	40 10 00 EC 33 00 50	Truss Head Screw	M3 x 5	トラス小ネジ	ZMC2-BI			
53	40 10 00 ED 33 00 60	Bind Head Screw	M3 x 6	バインド小ネジ	– do. –			
54	40 10 00 ED 34 01 00	– do. –	M4 x 10	〃	– do. –			
55	40 10 00 EH 33 51 00	Truss Tapping Screw	M3.5 x 10	トラスタッピングネジ	– do. –			
56	40 10 00 Ei 33 00 60	Bind Head Tapping Screw	M3 x 6	バインドタッピングネジ	– do. –			
57	40 10 00 Ei 03 01 00	– do. –	M3 x 10	〃	ZMC2-y			
58	40 10 00 Ei 33 01 20	– do. –	M3 x 12	〃	ZMC2-BI			
59	40 10 00 Ei 33 01 60	– do. –	M3 x 16	〃	– do. –			
60	40 10 00 Ei 95 03 50	Bind Head Screw	M5 x 35	尖先バインド小ネジ	FCM3-BI			
61	40 10 00 EL 34 01 40	Cems Screw	M4 x 14	セムス小ネジ	ZMC2-BI			
62	40 10 00 EO 04 01 60	Flat Head Tapping Screw	M4 x 16	皿タッピングネジ	ZMC2-y			
63	40 10 00 EV 20 30 40	Flat Washer	4S	平座金	ZMC2-BI			
64	40 10 00 EV 20 30 50	– do. –	5S	〃	– do. –			
65	40 10 00 EV 42 30 30	Toothed Lock Washer	3S	歯付座金	– do. –			
66	40 10 00 EV 42 30 40	– do. –	B4S	〃	– do. –			
67	40 10 00 EV 43 00 90	– do. –	9S	〃	ZMC2-y			
68	40 10 00 EV 98 04 60	Flange Nut	M4	フランジナット	– do. –			

※ New Parts (新規部品)

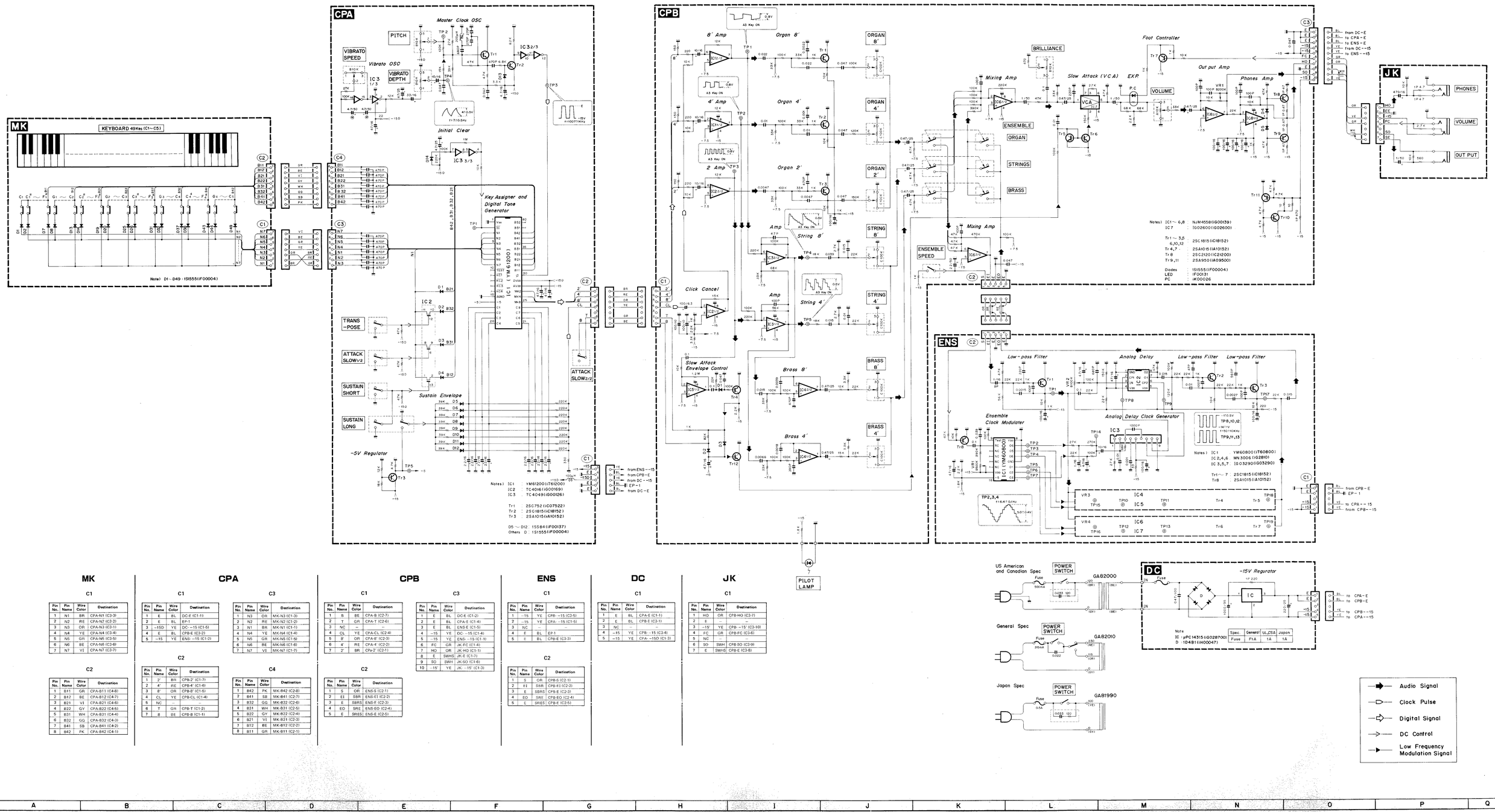
SKIO SERVICE MANUAL

1980年2月　　初版発行

発　　行　　所：日本楽器製造株式会社
電音サービス課

本文・総回路図・
版下・印刷：東海電子印刷株式会社

SK10 OVERALL CIRCUIT DIAGRAM 006882



MK

C1

Pin No.	Pin Name	Wire Color	Destination
1	N1	BR	CPA-N1 (C3-3)
2	N2	RE	CPA-N2 (C3-2)
3	N3	OR	CPA-N3 (C3-1)
4	N4	YE	CPA-N4 (C3-4)
5	N5	GR	CPA-N5 (C3-5)
6	N6	BE	CPA-N6 (C3-6)
7	N7	VI	CPA-N7 (C3-7)

C2

Pin No.	Pin Name	Wire Color	Destination
1	B11	GR	CPA-B11 (C4-8)
2	B12	BE	CPA-B12 (C4-7)
3	B21	VI	CPA-B21 (C4-6)
4	B22	GY	CPA-B22 (C4-5)
5	B31	WH	CPA-B31 (C4-4)
6	B32	GG	CPA-B32 (C4-3)
7	B41	SB	CPA-B41 (C4-2)
8	B42	PK	CPA-B42 (C4-1)

CPA

C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	DC-E (C1-1)
2	E	BL	EP-1
3	-15D	YE	DC-−15 (C1-5)
4	E	BL	CPB-E (C3-2)
5	−15	YE	ENS-−15 (C1-2)

C2

Pin No.	Pin Name	Wire Color	Destination
1	2'	BR	CPB-2' (C1-7)
2	4'	RE	CPB-4' (C1-6)
3	8'	OR	CPB-8' (C1-5)
4	CL	YE	CPB-CL (C1-4)
5	NC	–	–
6	T	GR	CPB-T (C1-2)
7	8	BE	CPB-8 (C1-1)

C3

Pin No.	Pin Name	Wire Color	Destination
1	N3	OR	MK-N3 (C1-3)
2	N2	RE	MK-N2 (C1-2)
3	N1	BR	MK-N1 (C1-1)
4	N4	YE	MK-N4 (C1-4)
5	N5	GR	MK-N5 (C1-5)
6	N6	BE	MK-N6 (C1-6)
7	N7	VI	MK-N7 (C1-7)

C4

Pin No.	Pin Name	Wire Color	Destination
1	B42	PK	MK-B42 (C2-8)
2	B41	SB	MK-B41 (C2-7)
3	B32	GG	MK-B32 (C2-6)
4	B31	WH	MK-B31 (C2-5)
5	B22	GY	MK-B22 (C2-4)
6	B21	VI	MK-B21 (C2-3)
7	B12	BE	MK-B12 (C2-2)
8	B11	GR	MK-B11 (C2-1)

CPB

C1

Pin No.	Pin Name	Wire Color	Destination
1	8	BE	CPA-8 (C2-7)
2	T	GR	CPA-T (C2-6)
3	NC	–	–
4	CL	YE	CPA-CL (C2-4)
5	8'	OR	CPA-8' (C2-3)
6	4'	RE	CPA-4' (C2-2)
7	2'	BR	CPA-2' (C2-1)

C2

Pin No.	Pin Name	Wire Color	Destination
1	S	OR	ENS-S (C2-1)
2	EI	SBR	ENS-EI (C2-2)
3	E	SBRS	ENS-E (C2-3)
4	EO	SRE	ENS-EO (C2-4)
5	E	SRES	ENS-E (C2-5)

C3

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	DC-E (C1-2)
2	E	BL	CPA-E (C1-4)
3	E	BL	ENS-E (C1-5)
4	−15	YE	DC-−15 (C1-4)
5	−15	YE	ENS-−15 (C1-1)
6	FC	GR	JK-FC (C1-4)
7	HO	OR	JK-HO (C1-1)
8	E	SWHS	JK-E (C1-7)
9	SO	SWH	JK-SO (C1-6)
10	−15'	YE	JK-−15' (C1-3)

ENS

C1

Pin No.	Pin Name	Wire Color	Destination
1	−15	YE	CPB-−15 (C2-5)
2	−15	YE	CPA-−15 (C1-5)
3	NC	–	–
4	E	BL	EP-1
5	E	BL	CPB-E (C3-3)

C2

Pin No.	Pin Name	Wire Color	Destination
1	S	OR	CPB-S (C2-1)
2	EI	SBR	CPB-EI (C2-2)
3	E	SBRS	CPB-E (C2-3)
4	EO	SRE	CPB-EO (C2-4)
5	E	SRES	CPB-E (C2-5)

DC

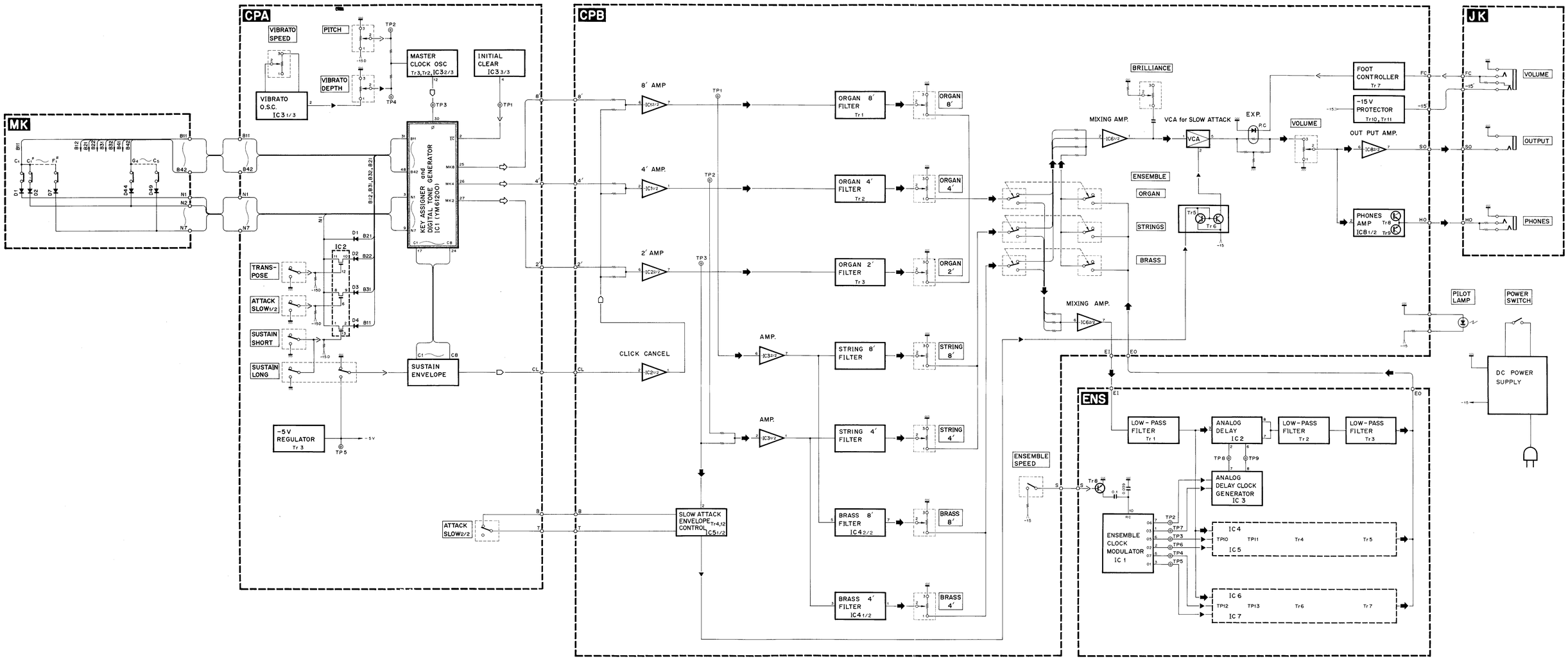
C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	CPA-E (C1-1)
2	E	BL	CPB-E (C3-1)
3	NC	–	–
4	−15	YE	CPB-−15 (C3-4)
5	−15	YE	CPA-−15D (C1-3)

JK

C1

Pin No.	Pin Name	Wire Color	Destination
1	HO	OR	CPB-HO (C2-7)
2	E	–	–
3	−15'	YE	CPB-−15' (C3-10)
4	FC	GR	CPB-FC (C3-6)
5	NC	–	–
6	SO	SWH	CPB-SO (C3-9)
7	E	SWHS	CPB-E (C3-8)

※SK10

SK10 BLOCK DIAGRAM 006882